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Peter William McOwan

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/500,854	Applicant(s) MCOWAN ET AL.	
	Examiner EDWARD PARK	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 27 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-7, 15-23, 31-48, 51** are rejected under 35 U.S.C. 103(a) as being unpatentable over by Plamondon (US 5,101,437) in view of Hu et al (US 6,157,731).

Regarding **claim 1**, Plamondon teaches an authentication system for authenticating a user's signature as electronically inputted into the system by a manual input device providing an output indicative of its location with respect to time when manipulated by the user, the system comprising:

a first extraction means for extracting angle and distance data relating to different parts of the user's signature inputted into the system by the manual input device to obtain a signature trace (Plamondon: col. 12, lines 1-9; col. 1, lines 44-67);

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registration means for setting up a reference data file comprising from angle and distance data extracted from a plurality of samples of the user's signature inputted into the system by the user by means of the manual input device during a registration phase (Plamondon: col. 6, lines 63-68);

comparison means for comparing the angle and distance data extracted by the extraction means from the user's signature inputted into the system during an authentication phase to reference angle and distance data held in the reference data file, according to defined verification criteria (Plamondon: col. 12, lines 64-68; col. 13, lines 1-15); and

verification means for providing an output indicative of an appropriate match between the inputted signature to be authenticated and the reference data in dependence on the result of the comparison (Plamondon: figures 1a,1b).

Hu, in the same field of endeavor, teaches a normalization means for normalizing the signature trace based upon a time to obtain a normalized signature trace (see col. 3, lines 1-9; processing the raw signature data, thereby to produce smoothed and normalize signature data); and a second extraction means for extracting angle and distance data relating to different parts of the normalize signature trace (see col. 4, lines 53-67; col. 5, lines 1-12; global features may include path-tangent angle of pen motion, rms speed, length-to-width ratio, etc.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon reference to utilize the normalization means for the signature trace as suggested by Hu, to "remove the effects of translation, rotation, and scale change from the signature" (see col. 5, lines 50-65) in order for matching/comparing through biometric authentication.

Regarding **claim 2**, Plamondon discloses to extract data relating to a plurality of different points of the user's signature including data relating some of said points to other points in the user's signature as inputted into the system by the manual input device (Plamondon: figures 8-11; col. 7, line 49 – col. 8, line 55).

Regarding **claim 3**, Plamondon discloses to extract data relating to a plurality of different points of the user's signature including data relating each of a number of said points to an immediately preceding point in the user's signature as inputted into the system by the manual input device (Plamondon: figures 8-11; col. 7, line 49 – col. 8, line 55).

Regarding **claim 4**, Plamondon discloses to extract data relating to a plurality of different points of the user's signature including data relating a last point to a first point in the user's signature as inputted into the system by the manual input device (Plamondon: figures 8-11; col. 7, line 49 – col. 8, line 55).

Regarding **claim 5**, Plamondon discloses an angle extract means for extracting angle data concerning the relative angular positions of a plurality of points of the user's signature (Plamondon: col. 7, line 49 – col. 8, line 55).

Regarding **claim 6**, Plamondon discloses a distance extract means for extracting distance data concerning the relative distances apart of a plurality of points of the user's signature (Plamondon: figures 8-11; col. 7, line 49 – col. 8, line 55).

Regarding **claim 7**, Plamondon discloses timing extract means for extracting timing data indicative of the relative times between execution of different parts of the user's signature, and the comparison means is adapted to compare the extracted timing data with reference timing data in the reference data file (Plamondon: figures 8-11; col. 7, line 49 – col. 8, line 55).

Regarding **claim 15**, Plamondon discloses a training means for training the system to refine the verification criteria by which a match is to be judged on the basis of angle and distance data relating to a plurality of samples of the user's signature inputted into the system by the user during the registration phase and generated false samples (Plamondon: col. 20, line 59 – col. 21, lines 67).

Regarding **claim 16**, Plamondon discloses a reject output indicative of non-matching of one or more verification criteria only after completion of all the verification procedures (Plamondon: figure 21; col. 21, lines 28-67).

Regarding **claim 17**, Plamondon discloses a method for authenticating a user's signature as electronically inputted into the system by a manual input device providing an output indicative of its location with respect to time when manipulated by the user, comprising:

- extracting angle and distance data relating to different parts of the user's signature inputted into the system by the manual input device to obtain a signature trace (Plamondon: col. 12, lines 1-9; col. 1, lines 44-67);
- creating a reference data file comprising angle and distance data extracted from a plurality of samples of the user's signature inputted into the system by the user using a manual input device during a registration phase (Plamondon: col. 6, lines 63-68);
- comparing the angle and distance data extracted from the user's signature inputted into the system during an authentication phase to reference angle and distance data held in the reference data file, according to defined verification criteria (Plamondon: col. 12, lines 64-68; col. 13, lines 1-15); and

providing an output indicative of an appropriate match between the inputted signature to be authenticated and the reference data in dependence on the result of the comparison (Plamondon: figures 1a,1b).

Plamondon does not disclose normalizing the signature trace based upon a time to obtain a normalized signature trace; and extracting angle and distance data relating to different parts of the normalized signature trace.

Hu, in the same field of endeavor, teaches normalizing the signature trace based upon a time to obtain a normalized signature trace (see col. 3, lines 1-9; processing the raw signature data, thereby to produce smoothed and normalize signature data); and extracting angle and distance data relating to different parts of the normalized signature trace (see col. 4, lines 53-67; col. 5, lines 1-12; global features may include path-tangent angle of pen motion, rms speed, length-to-width ratio, etc.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon reference to normalization the signature trace as suggested by Hu, to "remove the effects of translation, rotation, and scale change from the signature" (see col. 5, lines 50-65) in order for matching/comparing through biometric authentication.

Regarding **claim 18**, Plamondon discloses extracting data relating to a plurality of different points of the user's signature including data relating some of said points to other points in the user's signature as inputted into the system by the manual input device (Plamondon: figures 8-11; col. 7, line 49 – col. 8, line 55).

Regarding **claim 19**, Plamondon discloses extracting data relating to a plurality of different points of the user's signature including data relating each of a number of said points to

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an immediately preceding point in the user's signature as inputted into the system by the manual input device (Plamondon: figures 8-11; col. 7, line 49 – col. 8, line 55).

Regarding **claim 20**, Plamondon discloses extracting data relating to a plurality of different points of the user's signature including data relating a last point to a first point in the user's signature as inputted into the system by the manual input device (Plamondon: figures 8-11; col. 7, line 49 – col. 8, line 55).

Regarding **claim 21**, Plamondon teaches extracting angle data concerning the relative angular positions of a plurality of points of the user's signature (Plamondon: col. 7, line 49 – col. 8, line 55).

Regarding **claim 22**, Plamondon teaches extracting distance data concerning the relative distances apart of a plurality of points of the user's signature (Plamondon: figures 8-11; col. 7, line 49 – col. 8, line 55).

Regarding **claim 23**, Plamondon teaches extracting timing data indicative of the relative times between execution of different parts of the user's signature, and the comparison means is adapted to compare the extracted timing data with reference timing data in the reference data file (Plamondon: figures 8-11; col. 7, line 49 – col. 8, line 55).

Regarding **claim 31**, Plamondon discloses training to refine the verification criteria by which a match is to be judged on the basis of angle and distance data relating to a plurality of samples of the user's signature inputted into the system by the user during the registration phase and generated false samples (Plamondon: col. 20, line 59 – col. 21, lines 67).

Regarding **claim 32**, Plamondon discloses a reject output indicative of non-matching of one or more verification criteria only after completion of all the verification procedures (Plamondon: figure 21; col. 21, lines 28-67).

Regarding **claims 33-37**, Plamondon discloses a method for authenticating a user's signature as electronically inputted into the system by a manual input device providing an output indicative of its location with respect to time when manipulated by the user, comprising: extracting angle and distance data relating to different parts of a user's signature inputted device to obtain a signature trace (Plamondon: col. 12, lines 1-9; col. 1, lines 44-67); setting up a reference data file comprising angle and distance data relating to a plurality of samples of the user's signature inputted during a registration phase, wherein the plurality of samples of the user's signature are based upon a time to obtain a plurality of samples (Plamondon: col. 6, lines 63-68); comparing the angle and distance data extracted from the user's signature inputted during an authentication phase to reference angle and distance data held in the reference data file, according to defined verification criteria (Plamondon: col. 12, lines 64-68; col. 13, lines 1-15); providing an output indicative of an appropriate match between the inputted signature to be authenticated and the reference data in dependence on the result of the comparison, thereby providing verification of the user's signature (Plamondon: figures 1a,1b); and training to refine the verification criteria by which a match is to be judged on the basis of angle and distance data relating to a plurality of samples of the user's signature during the registration phase and generated false samples (Plamondon: col. 20, line 59 – col. 21, lines 67).

Plamondon does not disclose normalizing the signature trace based upon a time to obtain a normalized signature trace; and extracting angle and distance data relating to different parts of the normalized signature trace.

Hu, in the same field of endeavor, teaches normalizing the signature trace based upon a time to obtain a normalized signature trace (see col. 3, lines 1-9; processing the raw signature data, thereby to produce smoothed and normalize signature data); and extracting angle and distance data relating to different parts of the normalized signature trace (see col. 4, lines 53-67; col. 5, lines 1-12; global features may include path-tangent angle of pen motion, rms speed, length-to-width ratio, etc.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon reference to utilize the normalization means for the signature trace as suggested by Hu, to "remove the effects of translation, rotation, and scale change from the signature" (see col. 5, lines 50-65) in order for matching/comparing through biometric authentication.

Regarding **claims 38-42**, Plamondon discloses a computer-readable storage medium having computer-readable instructions stored thereon for authenticating a user's signature (see fig. 1, numeral 10, col. 10, lines 51-58; unit 10 allows the storage of the software as well as the different data associated with the system), the computer-readable instructions comprising instructions for:

extracting angle and distance data relating to different parts of a user's signature inputted to obtain a signature trace (Plamondon: col. 12, lines 1-9; col. 1, lines 44-67);

setting up a reference data file comprising angle and distance data extracted from a plurality of samples of the user's signature inputted using a manual input device during a registration phase, wherein the plurality of samples of the user's signature are based upon a time to obtain a plurality of samples (Plamondon: col. 6, lines 63-68);

comparing the angle and distance data extracted from the user's signature inputted into the system during an authentication phase to reference angle and distance data held in the reference data file, according to defined verification criteria (Plamondon: col. 12, lines 64-68; col. 13, lines 1-15);

providing an output indicative of an appropriate match between the inputted signature to be authenticated and the reference data in dependence on the result of the comparison, thereby providing verification of the user's signature (Plamondon: figures 1a,1b);

training to refine the verification criteria by which a match is to be judged on the basis of angle and distance data relating to a plurality of samples of the user's signature during the registration phase and generated false samples (Plamondon: col. 20, line 59 – col. 21, lines 67).

Plamondon does not disclose normalizing the signature trace based upon a time to obtain a normalized signature trace; and extracting angle and distance data relating to different parts of the normalized signature trace;

Hu, in the same field of endeavor, teaches normalizing the signature trace based upon a time to obtain a normalized signature trace (see col. 3, lines 1-9; processing the raw signature data, thereby to produce smoothed and normalize signature data); and extracting angle and distance data relating to different parts of the normalized signature trace (see col. 4, lines 53-67;

col. 5, lines 1-12; global features may include path-tangent angle of pen motion, rms speed, length-to-width ratio, etc.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon reference to utilize the normalization means for the signature trace as suggested by Hu, to "remove the effects of translation, rotation, and scale change from the signature" (see col. 5, lines 50-65) in order for matching/comparing through biometric authentication.

Regarding **claims 43-47**, Plamondon discloses a system for authenticating a user's signature, the system comprising:

- an input apparatus, wherein the input apparatus is configured to provide an output indicative of the location of the input apparatus with respect to time when the input apparatus is manipulated (see fig. 1, numeral 2, col. 7, lines 30-44, col. 10, lines 19-27; analogue-to-digital table 2 samples according to a constant frequency the handwriting movement of a user);
- a computing apparatus (see fig. 1, numeral 4), wherein the computing apparatus is configured to: extract angle and distance data relating to different parts of a user's signature outputted by the input apparatus to obtain a signature trace (Plamondon: col. 12, lines 1-9; col. 1, lines 44-67);
- a reference data file comprising angle and distance data relating to a plurality of samples of the user's signature inputted using a manual input device during a registration phase, wherein the plurality of samples of the user's signature are based upon a time to obtain a plurality of samples (Plamondon: col. 6, lines 63-68);
- a comparator apparatus configured to compare the angle and distance data extracted from the user's signature inputted into the system during an authentication phase to reference angle and

distance data held in the reference data file, according to defined verification criteria

(Plamondon: col. 12, lines 64-68; col. 13, lines 1-15);

an output apparatus configured to provide an output indicative of an appropriate match between the inputted signature to be authenticated and the reference data in dependence on the result of the comparison, thereby providing verification of the user's signature (Plamondon: figures 1a,1b); and

a trainer configured to refine the verification criteria by which a match is to be judged on the basis of angle and distance data relating to a plurality of samples of the user's signature during the registration phase and generated false samples (Plamondon: col. 20, line 59 – col. 21, lines 67).

Plamondon does not disclose normalize the signature trace based upon a time to obtain a normalized signature trace; and extract angle and distance data relating to different parts of the normalized signature trace.

Hu, in the same field of endeavor, teaches normalize the signature trace based upon a time to obtain a normalized signature trace (see col. 3, lines 1-9; processing the raw signature data, thereby to produce smoothed and normalize signature data); and extract angle and distance data relating to different parts of the normalized signature trace (see col. 4, lines 53-67; col. 5, lines 1-12; global features may include path-tangent angle of pen motion, rms speed, length-to-width ratio, etc.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon reference to utilize the normalization means for the signature trace as suggested by Hu, to "remove the effects of translation, rotation, and scale change from

the signature” (see col. 5, lines 50-65) in order for matching/comparing through biometric authentication.

Regarding **claims 48, 51**, Plamondon discloses a method of verifying a user's signature, comprising:

comparing angle and distance data from an input signature during an authentication phase to reference angle and distance data, according to defined verification criteria (Plamondon: col. 12, lines 64-68; col. 13, lines 1-15), and wherein the reference angle and distance data is obtained from a reference data file comprising angle and distance data relating to a plurality of samples of the user's signature, wherein the plurality of samples of the user's signature are based upon a time to obtain a plurality of samples (Plamondon: col. 6, lines 63-68); and providing an output indicative of an appropriate match between the inputted angle and distance data and the reference angle and distance in dependence on the result of the comparison, thereby providing verification of the user's signature (Plamondon: figures 1a,1b); training to refine the verification criteria by which a match is to be judged on the basis of angle and distance data relating to a plurality of samples of the user's signature during the registration phase and generated false samples (Plamondon: col. 20, line 59 – col. 21, lines 67).

Plamondon does not disclose the angle and distance data comprises extracted angle and distance data relating to different parts of a normalized signature trace.

Hu, in the same field of endeavor, teaches the angle and distance data comprises extracted angle and distance data relating to different parts of a normalized signature trace (see col. 3, lines 1-9, col. 4, lines 53-67; col. 5, lines 1-12; processing the raw signature data, thereby

to produce smoothed and normalize signature data; global features may include path-tangent angle of pen motion, rms speed, length-to-width ratio, etc.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon reference to utilize the normalization means for the signature trace as suggested by Hu, to "remove the effects of translation, rotation, and scale change from the signature" (see col. 5, lines 50-65) in order for matching/comparing through biometric authentication.

4. **Claims 8-11, 24-27, 52-54** are rejected under 35 U.S.C. 103(a) as being unpatentable over by Plamondon (US 5,101,437) with Hu et al (US 6,157,731), and further in view of Young et al (US 4,805,222).

Regarding **claims 8-11**, Plamondon with Hu combination discloses all elements as mentioned above in claim 1. Plamondon with Hu combination does not teach a password verification means that is provided for verifying input of a required password, as determined by reference password means, by the user using a keyboard input device; timing verification means that is provided for verifying input of the password by the user with the required timing, as determined by reference timing means, using the keyboard input device; and verifying a plurality of hold times for which the relevant keys of the keyboard input device are depressed during input of the password, and means for verifying a plurality of latency times between a release of one key and a depression of a following key during use of the keyboard input device to enter the password.

Young teaches a password verification means that is provided for verifying input of a required password, as determined by reference password means, by the user using a keyboard

input device (Young: col. 2, lines 40-52); timing verification means that is provided for verifying input of the password by the user with the required timing, as determined by reference timing means, using the keyboard input device (Young: col. 6, lines 50-63); verifying a plurality of hold times for which the relevant keys of the keyboard input device are depressed during input of the password, and means for verifying a plurality of latency times between a release of one key and a depression of a following key during use of the keyboard input device to enter the password (Young : col. 7, lines 6-21); and user name input means is provided for receiving a user name inputted into the system to identify the identity of the user for the purposes of selection of the required reference data file for that user (Young: figure 10).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon with Hu combination reference to utilize timing password verification and username as suggested by Young, to increase the dynamics and functionality of the authentication system with the addition another biometric feature.

Regarding **claims 24-27**, Plamondon with Hu combination discloses all elements as mentioned above in claim 17. Plamondon with Hu combination does not disclose verifying an input of a required password, as determined by reference password, by the user using a keyboard input device; verifying the input of the password by the user with a required timing, as determined by a reference timing, using the keyboard input device; verifying a plurality of hold times for which the relevant keys of the keyboard input device are depressed during input of the password; and verifying a plurality of latency times between the release of one key and the depression of the following key during use of the keyboard input device to enter the password;

and receiving a user name inputted into the system to identify the identity of the user for the purposes of selection of the required reference data file for that user.

Young, in the same field of endeavor, teaches verifying an input of a required password, as determined by reference password, by the user using a keyboard input device (Young: col. 2, lines 40-52); verifying the input of the password by the user with a required timing, as determined by a reference timing, using the keyboard input device (Young: col. 6, lines 50-63); verifying a plurality of hold times for which the relevant keys of the keyboard input device are depressed during input of the password; and verifying a plurality of latency times between the release of one key and the depression of the following key during use of the keyboard input device to enter the password (Young : col. 7, lines 6-21); and receiving a user name inputted into the system to identify the identity of the user for the purposes of selection of the required reference data file for that user (Young: figure 10).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon with Hu combination reference to utilize timing password verification and username as suggested by Young, to increase the dynamics and functionality of the authentication system with the addition another biometric feature.

Regarding **claims 52-54**, Plamondon with Hu combination discloses all elements as mentioned above in claim 48. Plamondon with Hu combination does not disclose verifying an input of a required password, as determined by reference password, by the user using a keyboard input device; verifying the input of the password by the user with a required timing, as determined by a reference timing, using the keyboard input device; verifying a plurality of hold times for which the relevant keys of the keyboard input device are depressed during input of the

password; and verifying a plurality of latency times between the release of one key and the depression of the following key during use of the keyboard input device to enter the password.

Young, in the same field of endeavor, teaches verifying an input of a required password, as determined by reference password, by the user using a keyboard input device (Young: col. 2, lines 40-52); verifying the input of the password by the user with a required timing, as determined by a reference timing, using the keyboard input device (Young: col. 6, lines 50-63); verifying a plurality of hold times for which the relevant keys of the keyboard input device are depressed during input of the password; and verifying a plurality of latency times between the release of one key and the depression of the following key during use of the keyboard input device to enter the password (Young : col. 7, lines 6-21).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon with Hu combination reference to utilize timing password verification and username as suggested by Young, to increase the dynamics and functionality of the authentication system with the addition another biometric feature.

5. **Claims 12, 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over by Plamondon (US 5,101,437) with Hu et al (US 6,157,731), and further in view of Moussa et al (US 5,680,470).

Regarding **claim 12**, Plamondon with Hu combination discloses all elements as mentioned above in claim 1. Plamondon with Hu combination does not teach at least one neural network for determining the verification criteria by which a match is to be judged.

Moussa teaches at least one neural network for determining the verification criteria by which a match is to be judged (Moussa: col. 1, lines 43-59).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon with Hu combination reference to utilize a neural network as suggested by Moussa, to increase the reliability and allow the “[adjustment of] sensitivity” (Moussa: col. 1, lines 43-59) of the verification system.

Regarding **claim 28**, Plamondon with Hu combination discloses all elements as mentioned above in claim 17. Plamondon with Hu combination does not teach at least one neural network for determining the verification criteria by which a match is to be judged.

Moussa teaches at least one neural network for determining the verification criteria by which a match is to be judged (Moussa: col. 1, lines 43-59).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon with Hu combination reference to utilize a neural network as suggested by Moussa, to increase the reliability and allow the “[adjustment of] sensitivity” (Moussa: col. 1, lines 43-59) of the verification system.

6. **Claims 13, 14, 29, 30, 49, 50** are rejected under 35 U.S.C. 103(a) as being unpatentable over by Plamondon (US 5,101,437) with Hu et al (US 6,157,731), and further in view of Collot et al (US 5,042,073).

Regarding **claims 13 and 14**, Plamondon with Hu combination discloses all elements as mentioned above in claim 1. Plamondon with Hu combination does not teach different features of the user's signature selected according to the fitness of such features to discriminate the user's signature for the purposes of verification and determined by a fitness function relating the relative fitness of the features to their form and number; and a optimization algorithm.

Collot teaches different features of the user's signature selected according to the fitness of such features to discriminate the user's signature for the purposes of verification and determined by a fitness function relating the relative fitness of the features to their form and number (Collot: col. 1, lines 67-68 – col. 2, lines 1-11); and a optimization algorithm (Collot: col. 1, lines 67-68 – col. 2, lines 1-11).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon with Hu combination reference to utilize a fitness/optimization function as suggested by Collot, to increase the reliability of the system by “minimiz[ing] decision errors” (Collot: col. 2, lines 5-11).

Regarding **claims 29, 30**, Plamondon with Hu combination discloses all elements as mentioned above in claim 17. Plamondon with Hu combination does not teach different features of the user's signature selected according to the fitness of such features to discriminate the user's signature for the purposes of verification and determined by a fitness function relating the relative fitness of the features to their form and number; and a optimization algorithm.

Collot teaches different features of the user's signature selected according to the fitness of such features to discriminate the user's signature for the purposes of verification and determined by a fitness function relating the relative fitness of the features to their form and number (Collot: col. 1, lines 67-68 – col. 2, lines 1-11); and a optimization algorithm (Collot: col. 1, lines 67-68 – col. 2, lines 1-11).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon with Hu combination reference to utilize a fitness/optimization

function as suggested by Collot, to increase the reliability of the system by “minimiz[ing] decision errors” (Collot: col. 2, lines 5-11).

Regarding **claims 49, 50**, Plamondon with Hu combination discloses all elements as mentioned above in claim 48. Plamondon with Hu combination does not teach different features of the user's signature selected according to the fitness of such features to discriminate the user's signature for the purposes of verification and determined by a fitness function relating the relative fitness of the features to their form and number; and a optimization algorithm.

Collot teaches different features of the user's signature selected according to the fitness of such features to discriminate the user's signature for the purposes of verification and determined by a fitness function relating the relative fitness of the features to their form and number (Collot: col. 1, lines 67-68 – col. 2, lines 1-11); and a optimization algorithm (Collot: col. 1, lines 67-68 – col. 2, lines 1-11).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Plamondon with Hu combination reference to utilize a fitness/optimization function as suggested by Collot, to increase the reliability of the system by “minimiz[ing] decision errors” (Collot: col. 2, lines 5-11).

Response to Arguments

7. Applicant's arguments with respect to **claim 1** have been considered but are moot in view of the new ground(s) of rejection.

Regarding **claims 2-16**, applicant argues that the claims are allowable due to the dependency from claim 1. This argument is not considered persuasive since claim 1 stands rejected and the arguments and rejection can be seen above.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWARD PARK whose telephone number is (571)270-1576. The examiner can normally be reached on M-F 10:30 - 20:00, (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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